UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 6TH AVENUE
SEATTLE, WASHINGTON 98101

DATE:	See date of Section Chief signature
SUBJECT:	CLEAN AIR ACT INSPECTION REPORT Phillips 66 Portland Facility, Portland, Oregon
FROM:	Daniel Heins, Environmental Scientist Air Toxics Enforcement Section, EPA Region 10
THRU:	Derrick Terada, Acting Section Chief Air Toxics Enforcement Section, EPA Region 10
TO:	File

BASIC INFORMATION

Facility Name: Phillips 66 Portland Facility
Facility Location: 5528 NW Doane Avenue, Portland, OR 97210

Date of Inspection: June 21, 2022

EPA Inspector(s):
1. Daniel Heins, Environmental Scientist

Other Attendees:
1. Todd Burke, Terminal Supervisor – Phillips 66
2. Kelly Hayes, Washington/Oregon Environmental Coordinator – Phillips 66
3. Mark Catlow, Lubricants Plant Manager – Phillips 66*
4. George Yun, Air Quality Inspector – Oregon Department of Environmental Quality (DEQ)
5. Chris Moore, Air Quality Inspector – DEQ

* Mark Catlow was present during the opening conference but not during the site tour or closing conference once Daniel Heins established that the inspection was concerned with the fuels terminal operations, not the lubricants operations.

Contact Email Address: Kelly.W.Hayes@p66.com, William.T.Burke@p66.com

Purpose of Inspection: Tanks inspection

Facility Type: Bulk fuels terminal / gasoline distribution facility

Arrival Time: 13:45
Departure Time: 15:30

Inspection Type: Announced Inspection

OPENING CONFERENCE

☒ Presented Credentials
☒ Stated authority and purpose of inspection
☐ Provided Small Business Resource Information Sheet
☒ Small Business Resource Information Sheet not provided. Reason: Not a small business
☒ Provided CBI warning to facility

The following information was obtained verbally from Phillips 66 representatives.

Process Description:
Phillips 66's Portland Terminal & Lubricants Facility ("the Facility") contains two business units: the lubricants unit and the midstream unit. This inspection is exclusively focused on the operations of the midstream unit, which contains all fuels terminal operations.

Phillips 66 stores gasoline, diesel, transmix, ethanol, biodiesel, butane, and fuels additives at the Facility. The Facility receives gasoline and diesel primarily via the Olympic Pipeline and marine vessels. Ethanol, biodiesel, and additives arrive via truck. The Facility has the capacity to receive fuels by rail, but only uses rail for the lubricants unit. The Facility distributes fuel primarily via its truck rack. Diesel is the only fuel unloaded to marine vessels, and thus there is no vapor recovery/combustion unit on the Facility's dock. Vapors from the truck loading rack are controlled by a vapor recovery unit.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:
Daniel Heins made observations with a FLIR GF320 optical gas imaging camera ("the FLIR"), capable of seeing hydrocarbon emissions plumes. EPA also used a Thermofisher TVA2020 flame ionization device ("the TVA") to measure the total hydrocarbon concentration in parts per million as methane (ppm) from vents or through hatches at the tops of tanks.

Daniel Heins focused the tour on the Tank Farm 2, on the north portion of the Facility. See Appendix A for site maps. This was where all gasoline, ethanol, and transmix tanks at the Facility are located.

Daniel Heins observed and recorded emissions plumes out of tanks 2915, 3411, 3413, 3409, 3408, and 3407, all of which contained gasoline. He additionally observed and recorded emissions plumes out of tank 3410 (ethanol) and 4259 (transmix). No plumes were seen for tank 4212 (ethanol). For each of these tanks, Daniel Heins took TVA readings on the tank roofs from center vents if available or from hatches lifted by Facility personnel to facilitate readings.

Photos and/or Videos: were taken during the inspection. See Appendix B.
Field Measurements: were taken during this inspection. See Appendix C.

RECORDS REVIEW

Ahead of the inspection, Daniel Heins requested and reviewed a site map and a list of storage tanks with details of tank product, construction, size, and applicable air regulations.

CLOSING CONFERENCE

☒ Provided U.S. EPA point of contact to the facility

Requested documents:
Daniel Heins requested tank levels of selected tanks at the Facility from the time of the inspection.

Concerns:
Daniel Heins noted the elevated hydrocarbon concentrations at many of the tanks, and that concentrations would likely be significantly higher towards the bottom of the tank headspace. Daniel Heins noted that this could potentially be an indication of an issue in the performance of the internal floating roof in suppressing emissions and that there is potential that the concentrations may be high enough at the bottom to pose a safety concern.

DIGITAL SIGNATURES

Heins, Daniel Digitally signed by Heins, Daniel Date: 2022.07.14 12:04:13 -07'00'

Daniel Heins, Report Author

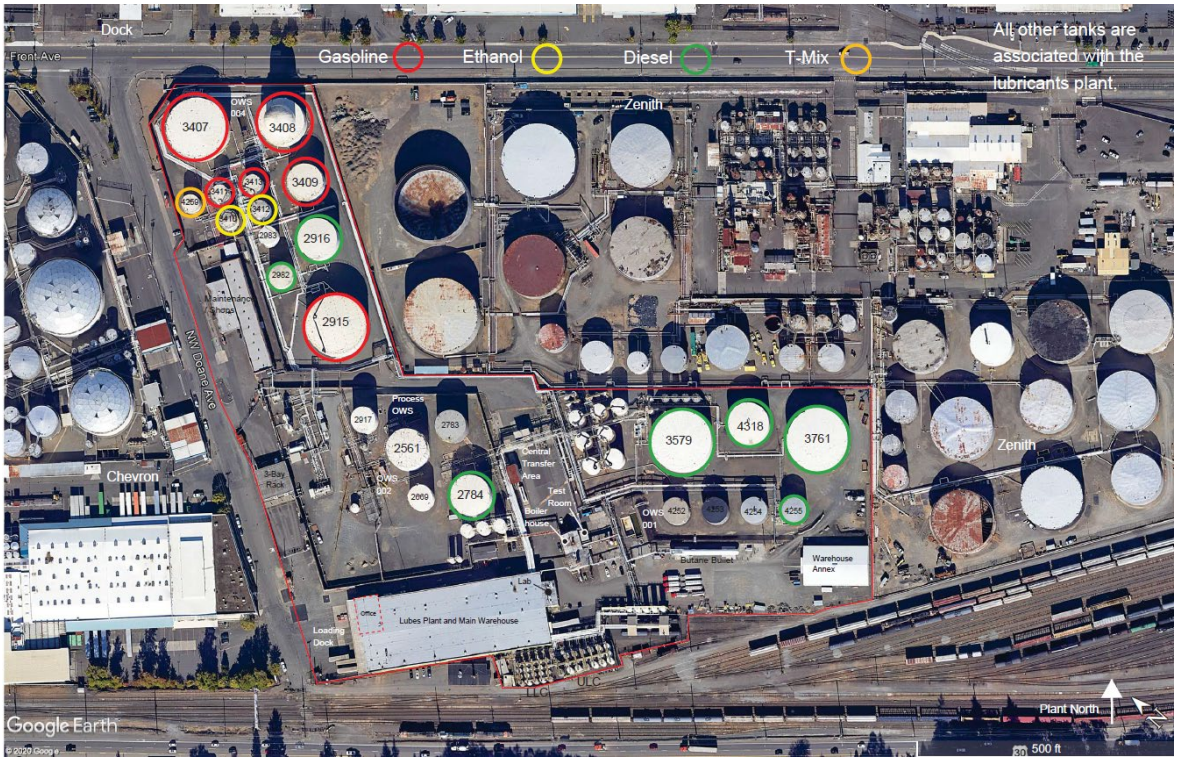
DERRICK TERADA Digitally signed by DERRICK TERADA Date: 2022.07.18 11:54:51 -07'00'

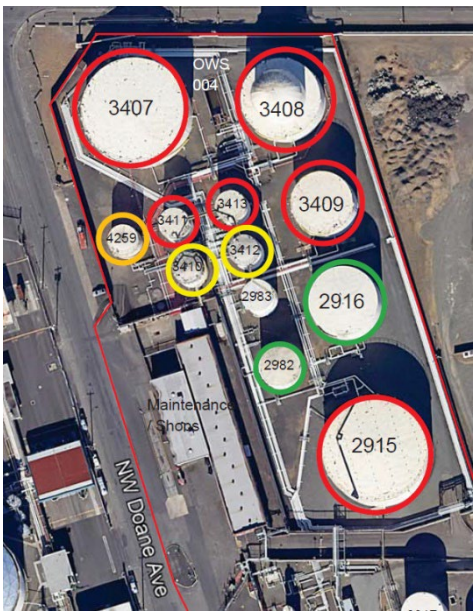
Derrick Terada, Acting Section Chief

APPENDICES AND ATTACHMENTS

Appendix A: Site Map
Appendix B: Digital Image Log
The files listed in this log are attachments to this report.
Appendix C: Field Measurement Data

APPENDIX A: SITE MAPS





Above is the site map of the Portland Terminal provided by Phillips66 to Daniel Heins in advance of the inspection. "T-Mix" is short for transmix, referring to mixed fuels resulting from transport/facility operations.

To the left is an enlarged section of the above map focused on Tank Farm 2, the area of EPA monitoring during the site tour.

APPENDIX B: DIGITAL IMAGE LOG

Inspector Name: Daniel Heins
Archival Record Location: US EPA Sharepoint
Camera type: FLIR GF320 optical gas imaging camera, for detecting hydrocarbon and VOC emissions.

File Name	Date/Time	Tank	Description
MOV_0676.mp4	6/21/2022 14:18	Tank 2915 (Gasoline)	Plume out rim vent, viewed from ground
MOV_0677.mp4	6/21/2022 14:27	Tank 2915 (Gasoline)	Plume out rim vent, viewed from ground directly under
MOV_0678.mp4	6/21/2022 14:31	Tank 3410 (Ethanol)	Plume out rim vents, viewed from ground
DC_0679.jpg	6/21/2022 14:35	Tank 3410 (Ethanol)	Center vent TVA reading taken at (true color photo)
MOV_0680.mp4	6/21/2022 14:37	Tank 3411 (Gasoline)	Plume out rim vent, viewed from neighboring tank
MOV_0682.mp4	6/21/2022 14:40	Tank 3413 (Gasoline)	Plume out rim vent, viewed from neighboring tank
MOV_0683.mp4	6/21/2022 14:46	Tank 3409 (Gasoline)	Plume out rim vent, viewed from neighboring tank
MOV_0684.mp4	6/21/2022 14:48	Front: Tank 3413 (Gasoline) Back: Tank 3408 (Gasoline)	Plumes out rim vents on both tanks, viewed from neighboring tank
MOV_0685.mp4	6/21/2022 14:54	Tank 4259 (Transmix)	Plume out rim vent, viewed from ground directly under
MOV_0686.mp4	6/21/2022 14:56	Tank 3407 (Gasoline)	Plumes out rim vents, viewed from ground
MOV_0687.mp4	6/21/2022 15:02	Tank 3408 (Gasoline)	Plumes out rim vents, viewed from ground
MOV_0689.mp4	6/21/2022 15:06	Tank 3409 (Gasoline)	Plume out rim vent, viewed from neighboring tank

APPENDIX C: FIELD MEASUREMENT DATA

Tank #	Product	TVA PPM	TVA Reading Location	IFR Type	Notes
2915	Gasoline	470	hatch	aluminum	
3410	Ethanol	410	center vent	not stated	400 at hatch
3411	Gasoline	300	center vent	aluminum	
3413	Gasoline	419	center vent	aluminum	
3412	Ethanol	30	center vent	not stated	No plume observed with FLIR
3409	Gasoline	610	center vent	aluminum	
4259	Transmix	160	center vent	steel	
3408	Gasoline	350	hatch	aluminum	
3407	Gasoline	440	center vent	aluminum	

TVA instrument readings are given in parts per million (ppm) total hydrocarbon, as methane. All TVA reading locations are on the tank roofs.

Calibration and Instrument Information

Daniel Heins used a ThermoFisher Toxic Vapor Analyzer 2020 (TVA2020), designated as TVA A95732. The EPA TVA2020 response time is approximately 4.5 seconds.

	Calibration gas ppm	A95732 ppm
08:30 calibration check	500	497
08:30 calibration check	10000	1.03%
18:15 drift check	500	471
18:15 drift check	10000	9802

EPA calibration gases

Composition	Lot #	Expiration
Air zero grade THC <1 ppm	DBJ-1-24	March 2023
Methane in air 500 ppm	1-167-64	June 2024
Methane in air 10,000 ppm	228894	February 2023